

SAMPLING TRIP REPORT

Site Name: Elizabeth Coal Gas Site II
TDD No.: 02-9104-0012
Sampling Dates: May 1,3, & 7,1991
1. Site Location: See Figure 1
2. Grid Sampling Locations: See Figure 2
3. Sample Descriptions: See Tables 1 & 2
4. Sampling Procedure: See Sampling Plan
5. Laboratories Receiving Samples:

Sample
Number & Type

Name and Address of Laboratory

114 Soil

NUS, Inc.
1090 King Georges Post Road
Edison, NJ 08837

13 Soil
6 Aqueous

USEPA
Environmental Services Division
Raritan Depot
2890 Woodbridge Avenue
Edison, NJ 08837-3679

6. Sampling Event and Shipment:

Purpose: The objective of this project was to provide data to determine the extent and concentration of contamination on site.

<u>Number of Samples</u>	<u>Concentration (low/med/high)</u>	<u>Matrix</u>	<u>Analysis</u>	<u>Air Bill#</u>	<u>Shipping Date</u>
114	low	soil	semi-VOA	delivered	May 2&3 1991
6	low	aqueous	VOA, semi-VOA, PCB/Pest and Metals	delivered	May 7 1991
13	low	soil	same as above	delivered	May 7 1991



7. Sampling Personnel:

Ed Makarewicz, USEPA

Project Director

William Sy, TAT II

Overall Project
Coordinator and Sampling
QC

Richard Setzer, TAT II

Laboratory Coordination &
QC

Desmond Devine, TAT II

Sampling Operation

Sterling Rideout, TAT II

Sampling Operation

8. Weather Conditions:

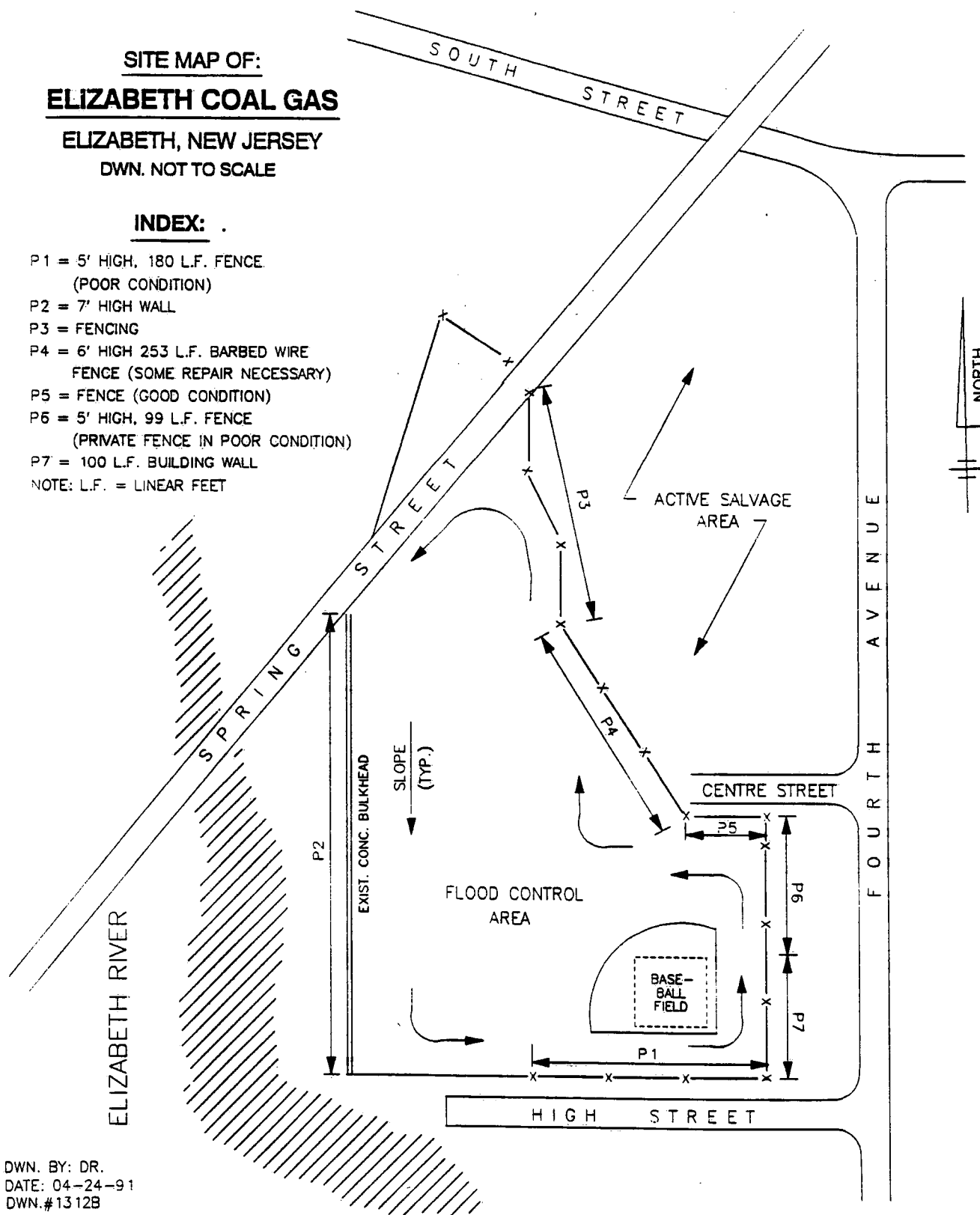
Mostly sunny, temperatures in the 60's.

Figure 1 Site Location Map

SITE MAP OF:
ELIZABETH COAL GAS
 ELIZABETH, NEW JERSEY
 DWN. NOT TO SCALE

INDEX:

- P1 = 5' HIGH, 180 L.F. FENCE
(POOR CONDITION)
 - P2 = 7' HIGH WALL
 - P3 = FENCING
 - P4 = 6' HIGH 253 L.F. BARBED WIRE
FENCE (SOME REPAIR NECESSARY)
 - P5 = FENCE (GOOD CONDITION)
 - P6 = 5' HIGH, 99 L.F. FENCE
(PRIVATE FENCE IN POOR CONDITION)
 - P7 = 100 L.F. BUILDING WALL
- NOTE: L.F. = LINEAR FEET



DWN. BY: DR.
 DATE: 04-24-91
 DWN.#13128



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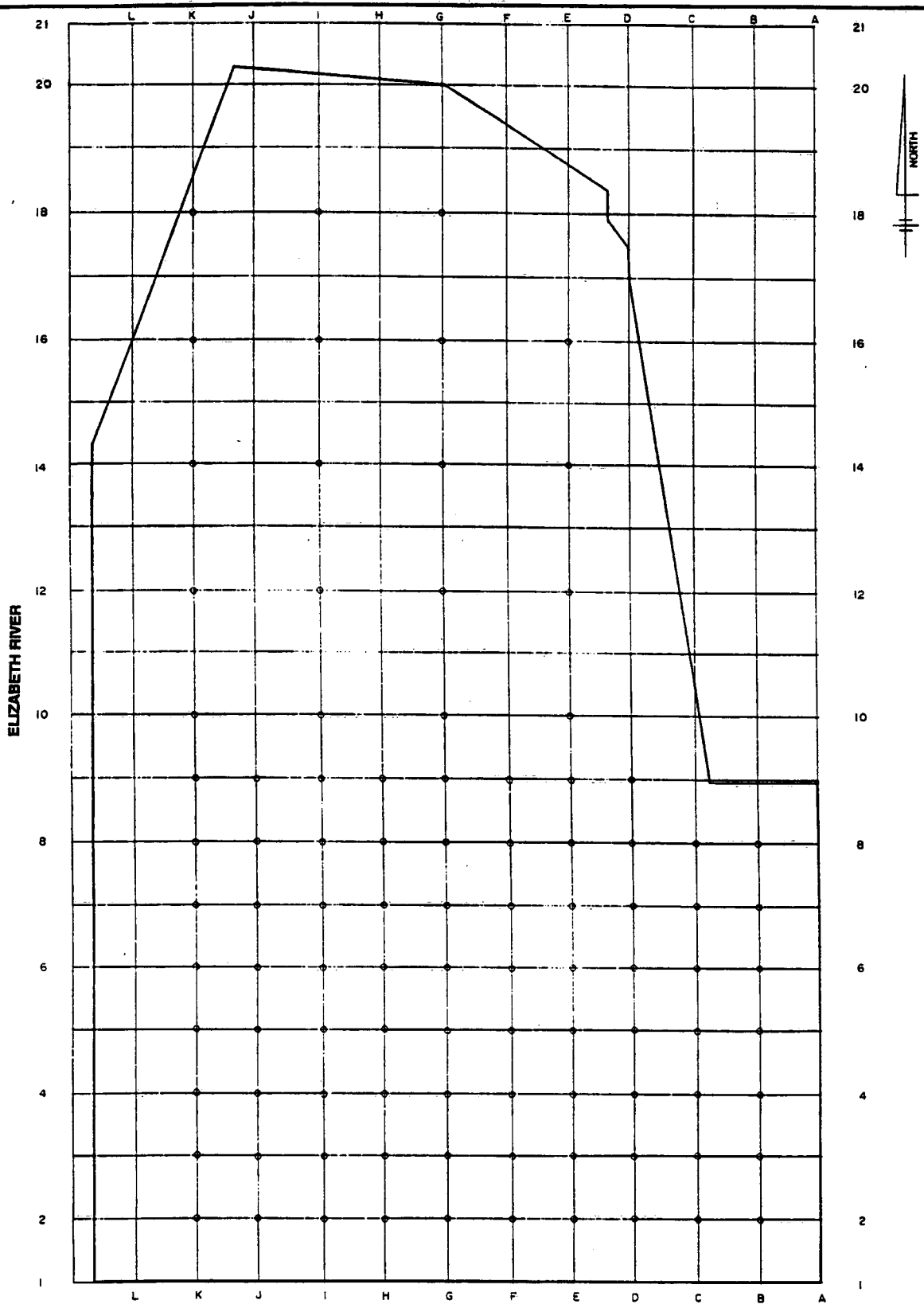
IN ASSOCIATION WITH FOSTER WHEELER CORP.,
 C.C. JOHNSON & MALHOTRA, P.C., RESOURCE
 APPLICATIONS, INC. AND R.E. SARRIERA ASSOCIATES

EPA PM
E. MAKAREWICZ

TAT PM
M. EDWARDS

FIGURE 1

Figure 2 Grid Sampling Location Map



HIGH STREET

SAMPLE LOCATION MAP OF:
ELIZABETH COAL GAS
 ELIZABETH, NEW JERSEY
 SCALE: 1 in. = 40 ft.

DWN. BY: DR
 DATE: 04-23-91
 DWN. #1312h



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 C.C. JOHNSON & MALHOTRA, P.C., RESOURCE
 APPLICATIONS, INC. AND R.E. BARRERA ASSOCIATES

EPA PM
E. MAKAREWICZ

TAT PM
M. EDWARDS

FIGURE 2

Table 1 Sample Description to FIT

SAMPLES SENT TO FIT

Sample No.	Matrix	Analysis
B2	soil	semi-VOA
B3	soil	semi-VOA
B4	soil	semi-VOA
B5	soil	semi-VOA
B6	soil	semi-VOA
B7	soil	semi-VOA
B8	soil	semi-VOA
C1	soil	semi-VOA
C2	soil	semi-VOA
C3	soil	semi-VOA
C4	soil	semi-VOA
C5	soil	semi-VOA
C6	soil	semi-VOA
C7	soil	semi-VOA
C8	soil	semi-VOA
D2	soil	semi-VOA
D3	soil	semi-VOA
D4	soil	semi-VOA
D5	soil	semi-VOA
D6	soil	semi-VOA
D7	soil	semi-VOA
D8, D8 MS/MSD	soil	semi-VOA
D9	soil	semi-VOA
E2	soil	semi-VOA
E3	soil	semi-VOA
E4, E4 MS/MSD	soil	semi-VOA
E5, E5 MS/MSD	soil	semi-VOA
E6	soil	semi-VOA
E7	soil	semi-VOA
E8	soil	semi-VOA
E9	soil	semi-VOA
E10	soil	semi-VOA
E12s	soil	semi-VOA
E12ss	soil	semi-VOA
E14	soil	semi-VOA
E16, E16 MS/MSD	soil	semi-VOA
F2	soil	semi-VOA
F3	soil	semi-VOA
F4	soil	semi-VOA
F5	soil	semi-VOA
F6	soil	semi-VOA
F7	soil	semi-VOA
F8s	soil	semi-VOA
F8ss	soil	semi-VOA
F9	soil	semi-VOA
G2	soil	semi-VOA
G3	soil	semi-VOA
G4	soil	semi-VOA
G5	soil	semi-VOA
G6	soil	semi-VOA
G7	soil	semi-VOA
G8	soil	semi-VOA
G9	soil	semi-VOA
G10	soil	semi-VOA
G12	soil	semi-VOA
G14	soil	semi-VOA
G16	soil	semi-VOA
G18s	soil	semi-VOA
G18ss, G18ss MS/MSD	soil	semi-VOA

Sample No.	Matrix	Analysis
H2	soil	semi-VOA
H3	soil	semi-VOA
H4	soil	semi-VOA
H5	soil	semi-VOA
H6	soil	semi-VOA
H7s	soil	semi-VOA
H7ss	soil	semi-VOA
H8	soil	semi-VOA
H9	soil	semi-VOA
I2	soil	semi-VOA
I3	soil	semi-VOA
I4	soil	semi-VOA
I5	soil	semi-VOA
I6	soil	semi-VOA
I7	soil	semi-VOA
I8	soil	semi-VOA
I9	soil	semi-VOA
I10	soil	semi-VOA
I12, I12 MS/MSD	soil	semi-VOA
I14s	soil	semi-VOA
I14ss	soil	semi-VOA
I16	soil	semi-VOA
I18	soil	semi-VOA
J2	soil	semi-VOA
J3	soil	semi-VOA
J4	soil	semi-VOA
J4ss6	soil	semi-VOA
J5	soil	semi-VOA
J6	soil	semi-VOA
J7	soil	semi-VOA
J8	soil	semi-VOA
J9	soil	semi-VOA
K2, K2 MS/MSD	soil	semi-VOA
K3	soil	semi-VOA
K4	soil	semi-VOA
K5	soil	semi-VOA
K6, K6 MS/MSD	soil	semi-VOA
K7	soil	semi-VOA
K8	soil	semi-VOA
K9s	soil	semi-VOA
K9ss	soil	semi-VOA
K10	soil	semi-VOA
K12	soil	semi-VOA
K14	soil	semi-VOA
K16	soil	semi-VOA
2M	soil	semi-VOA
M8	soil	semi-VOA
M12	soil	semi-VOA
X5	soil	semi-VOA
X6	soil	semi-VOA
X7	soil	semi-VOA
X8	soil	semi-VOA
#1	soil	semi-VOA
#2	soil	semi-VOA
#3	soil	semi-VOA
#4	soil	semi-VOA
SS4, SS4 MS/MSD	soil	semi-VOA
SS5	soil	semi-VOA

Table 2 Sample Description to ESD

SAMPLES SENT TO ESD

Sample No.	Laboratory No.	Matrix	Analysis
G-15	097269	aqueous	VOA, semi-VOA, Metals, PCB/Pest
H-16	097270	aqueous	VOA, semi-VOA, Metals, PCB/Pest
A-Q-1	097271	aqueous	VOA, semi-VOA, Metals, PCB/Pest
L-12	097272	aqueous	VOA, semi-VOA, Metals, PCB/Pest
Trip Blank	097273	aqueous	VOA, semi-VOA, Metals, PCB/Pest
Rinsate	097274	aqueous	VOA, semi-VOA, Metals, PCB/Pest
D-4ss	097327	soil	VOA, semi-VOA, Metals, PCB/Pest
D-4s	097328	soil	VOA, semi-VOA, Metals, PCB/Pest
D-4s MS	097330	soil	VOA, semi-VOA, Metals, PCB/Pest
D-4s MS/MSD	097331	soil	VOA, semi-VOA, Metals, PCB/Pest
I-10s	097332	soil	VOA, semi-VOA, Metals, PCB/Pest
H-11s	097333	soil	VOA, semi-VOA, Metals, PCB/Pest
H-4s	097334	soil	VOA, semi-VOA, Metals, PCB/Pest
J-6s	097335	soil	VOA, semi-VOA, Metals, PCB/Pest
F-6s	097336	soil	VOA, semi-VOA, Metals, PCB/Pest
I-14	097337	soil	VOA, semi-VOA, Metals, PCB/Pest
Z-1	097338	soil	VOA, semi-VOA, Metals, PCB/Pest
H-8	097339	soil	VOA, semi-VOA, Metals, PCB/Pest
I-14ss	097340	soil	VOA, semi-VOA, Metals, PCB/Pest
D-9	097341	soil	VOA, semi-VOA, Metals, PCB/Pest
K-12	097342	soil	VOA, semi-VOA, Metals, PCB/Pest

Sampling Plan

TAT-02-F-06295

PROJECT SAMPLING PLAN
ELIZABETH COAL GAS
406 SOUTH STREET
ELIZABETH, UNION COUNTY, NEW JERSEY

APRIL 1991

Prepared By:

Michael Edwards
Region II Technical Assistance Team
Roy F. Weston, Inc.
Major Programs Division
Edison, New Jersey 08837

Prepared For:

Ed Makarewicz
Response and Prevention Branch
U.S. EPA Region II
Edison, New Jersey 08837

SAMPLING PLAN
ELIZABETH COAL GAS SITE

1. **PROJECT NAME:** Elizabeth Coal Gas Site
406 South Street
Elizabeth, Union County, New Jersey
2. **PROJECT REQUESTED BY:** Ed Makarewicz, On-Scene Coordinator
Response and Prevention Branch, USEPA
3. **DATE REQUESTED:** April 17, 1991
4. **DATE OF PROJECT INITIATION:** April 19, 1991
5. **PROJECT OFFICER:** Michael Edwards, TAT-II
6. **QUALITY ASSURANCE OFFICER:** Anibal Diaz, TAT/II
7. **PROJECT DESCRIPTION:**

A. OBJECTIVE AND SCOPE:

The objective of this project is to identify potential hazardous substances that may be present in the soil located on the Elizabeth Coal Gas site.

The scope of the project entails obtaining soil samples from one hundred fifty three sampling locations on-site. Depending on the location, samples will either be collected from the surface or from a depth of 12-24 inches. The samples will be sent for analysis, and the sampling results will be used to determine if a soil removal action is necessary.

B. DATA USAGE:

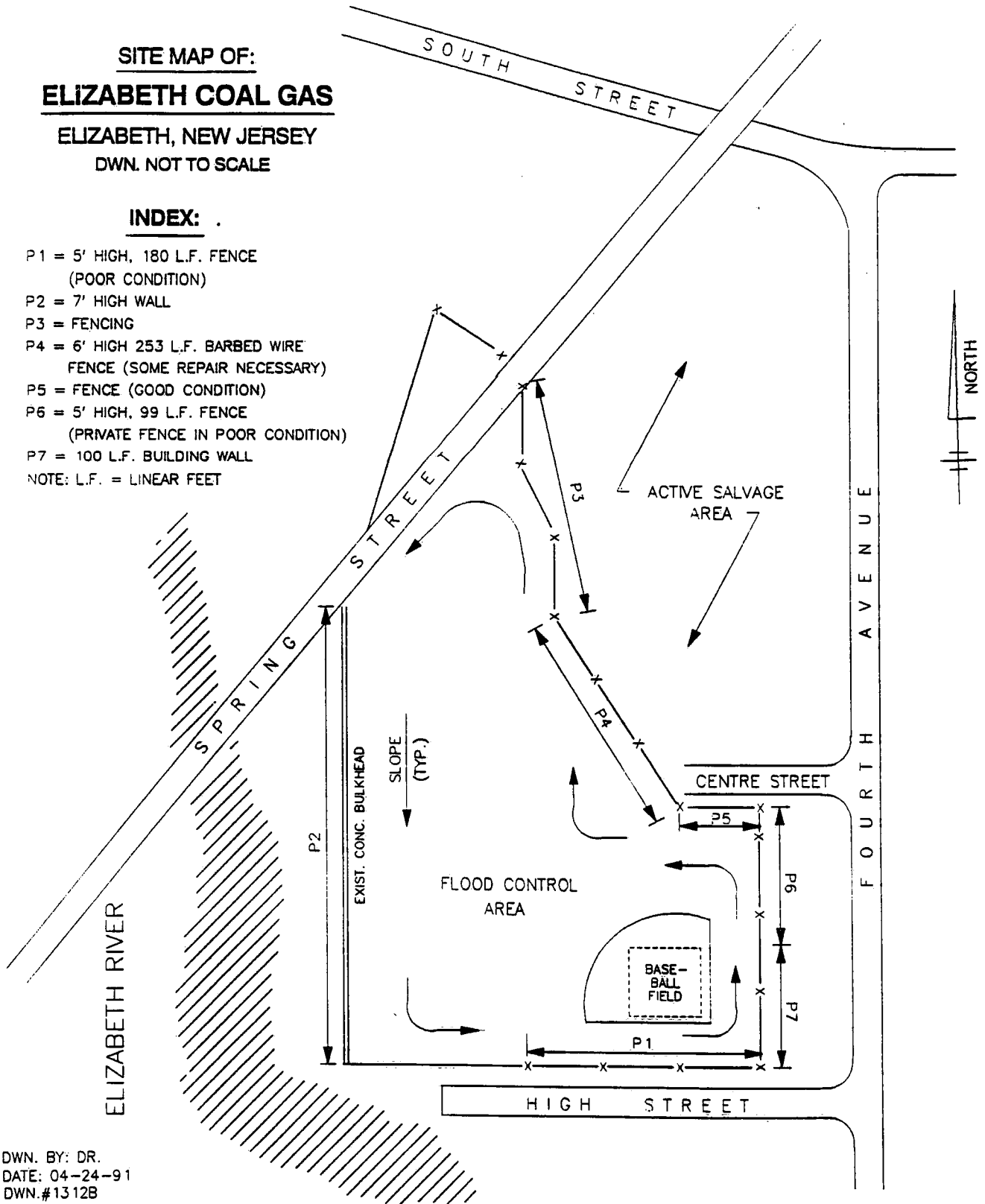
The data generated in this sampling and analysis project will be used to:

- i. Determine the specific organic compounds that may be present in the soil;
- ii. Determine whether these substances pose a threat to human health and the environment;
- iii. Determine whether the levels of contamination meet EPA's criteria for a removal action. If so, then the best method for treatment/disposal of the hazardous material will be determined.

SITE MAP OF:
ELIZABETH COAL GAS
 ELIZABETH, NEW JERSEY
 DWN. NOT TO SCALE

INDEX:

- P1 = 5' HIGH, 180 L.F. FENCE
(POOR CONDITION)
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DWN. BY: DR.
 DATE: 04-24-91
 DWN.#1312B



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MAJOR PROGRAMS DIVISION

EPA PM
E. MAKAREWICZ

IN ASSOCIATION WITH FOSTER WHEELER CORP.,
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 APPLICATIONS, INC. AND R.E. SARRIERA ASSOCIATES

TAT PM
M. EDWARDS

FIGURE 1

C. BACKGROUND AND HISTORY:

The Elizabeth Coal Gas Site #2 is an inactive former coal gasification site located in a mixed urban residential and industrial area between South Street, High Street, Fourth Avenue, and the Elizabeth River under the U.S. Routes 1 and 9 Viaduct in Elizabeth, New Jersey. The site is comprised of approximately 2 acres and can be divided into two sections. The northern section of the site is an active salvage area while the southern portion is inactive and is used for flood control and as a public access baseball field (see Figure 1).

The site has been owned by Elizabethtown Gas Light Company since 1855 and was used to manufacture coal gas until approximately 1901. Coal gas operations took place primarily in the northern portion of the site but most likely extended into the southern portion also. Presently, the northern section of the property is still owned by Elizabethtown Gas Light Company but is operated by Vignola Salvage Corp. as a storage and light industrial facility. The southern half of the property was donated to the Union County Department of Parks and Recreation by the City of Elizabeth in 1953. This part of the property is part of flood control project. A small rectangular parcel of property, which encompasses the baseball diamond itself, is owned by the Church of Saint Anthony.

Actual waste handling practices used at the plant during the time of coal gas production are largely unknown. It is very likely that coal and coke were stored on site in large piles. Waste materials which were not marketable, such as poor quality tars and oils, were probably deposited in unlined pits on site. Analytical results of surface and subsurface soil samples taken during the NUS Region 2 FIT site inspection indicate the presence of elevated concentrations of compounds including high levels of polynuclear aromatic hydrocarbons (PAHs). Although levels of PAHs were generally higher than those found in the sample that was intended to represent the background conditions, in many instances "background" levels for other compounds detected were comparable to or higher than those found in some on-site soil samples. This indicates that either those on-site samples are unaffected by facility wastes or that the residential area where the "background" samples was collected has been impacted by the site. Some remedial action has been reported to have occurred at the sit along with the removal and/or addition of unknown amounts of soil during the flood control basin construction.

The site is partially fenced with a locked gate along Centre Street. There is a high potential for a release of contaminants to both groundwater and surface water from the facility; however, groundwater and surface water in the area

are used for industrial and commercial purposes only. In addition portion of the site is used as a baseball field and children were observed on site which poses the threat of direct contact with on-site wastes and contaminated surface soils. Therefore, a listing site inspection is recommended for the Elizabethtown Coal Gas Site #2.

D. PARAMETER TABLE:

<u>Parameter</u>	<u># Of Samples</u>	<u>Sample Matrix</u>	<u>Analytical Method</u>	<u>Sample Preservation</u>	<u>Holding Time</u>	<u>Volume</u>
Semi Volatile	182	Soil*	8250	None	Extract 7 days	8 oz → 40ml
Semi Volatile	22	Aqueous**	625/CLP	None	Extract 7 days	4 x 1l

* = All soil samples will be analyzed as low/medium concentration in accordance with methods prescribed in the USEPA Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods; 2nd Edition, USEPA SW-846, 1982.

** = All aqueous samples will be analyzed as low/medium concentration as outlined in Methods For Chemical Analysis of Water and Waste EPA-600/4-79-020, USEPA, March 1983.

8. PROJECT FISCAL INFORMATION:

Sampling equipment and manpower will be provided by the Technical Assistance Team (TAT) in coordination with the USEPA. All man-hours expended by TAT will be charged to TDD # 02-9104-12.

9. PROJECT ORGANIZATIONS AND RESPONSIBILITY:

The following is a list of key project personnel and their corresponding responsibilities:

Ed Makarewicz, USEPA	Project Director
Michael Edwards, TAT/II	Overall Project Coordination
Anibal Diaz, TAT/II	QA/QC Officer
William Sy, TAT/II	Sampling Operations
Sterling Rideout	Sampling Operations
Michael Mentzel	Sampling Operations
Thomas O'Neill	Sampling Operations

10. SAMPLING PROCEDURE:

The site will be divided into 25' x 25' grids with approximately 153 sampling locations. Each location will be designated by a numeric and an alphabetic coordinate (see Figure 2). Soil and water samples (surface and subsurface 1'-2' deep) will be collected at each coordinate as specified. Ninety percent of samples collected along with the associated QA/QC samples will be delivered to the Field Investigation Team (FIT) and the other ten percent will be delivered to Environmental Service Division (ESD).

Surface soil samples will be obtained using stainless steel sampling trowels. Subsurface samples will be collected using a hand auger.

The following decontamination procedure will be used for the sampling hardware between sample location:

- a. Wash and scrub with soap and water;
- b. Tap water rinse;
- c. Tap water rinse;
- d. A methanol followed by a hexane or acetone rinse;
- e. Deionized water rinse;
- f. Air dry.

Sample containers will be obtained from Eagle Pitcher as specialty-cleaned according to the CLP Sample Bottle Repository Guidelines. Each sample will be individually labeled in the field, placed in a ziplock plastic bag, and stored in a cooler (with ice packs if necessary) until delivery to appropriate source. The field team will also be responsible for preparation of the proper Chain-of-Custody form before delivery of the samples. The shipment will include the use of coolers, paint cans, and vermiculite.

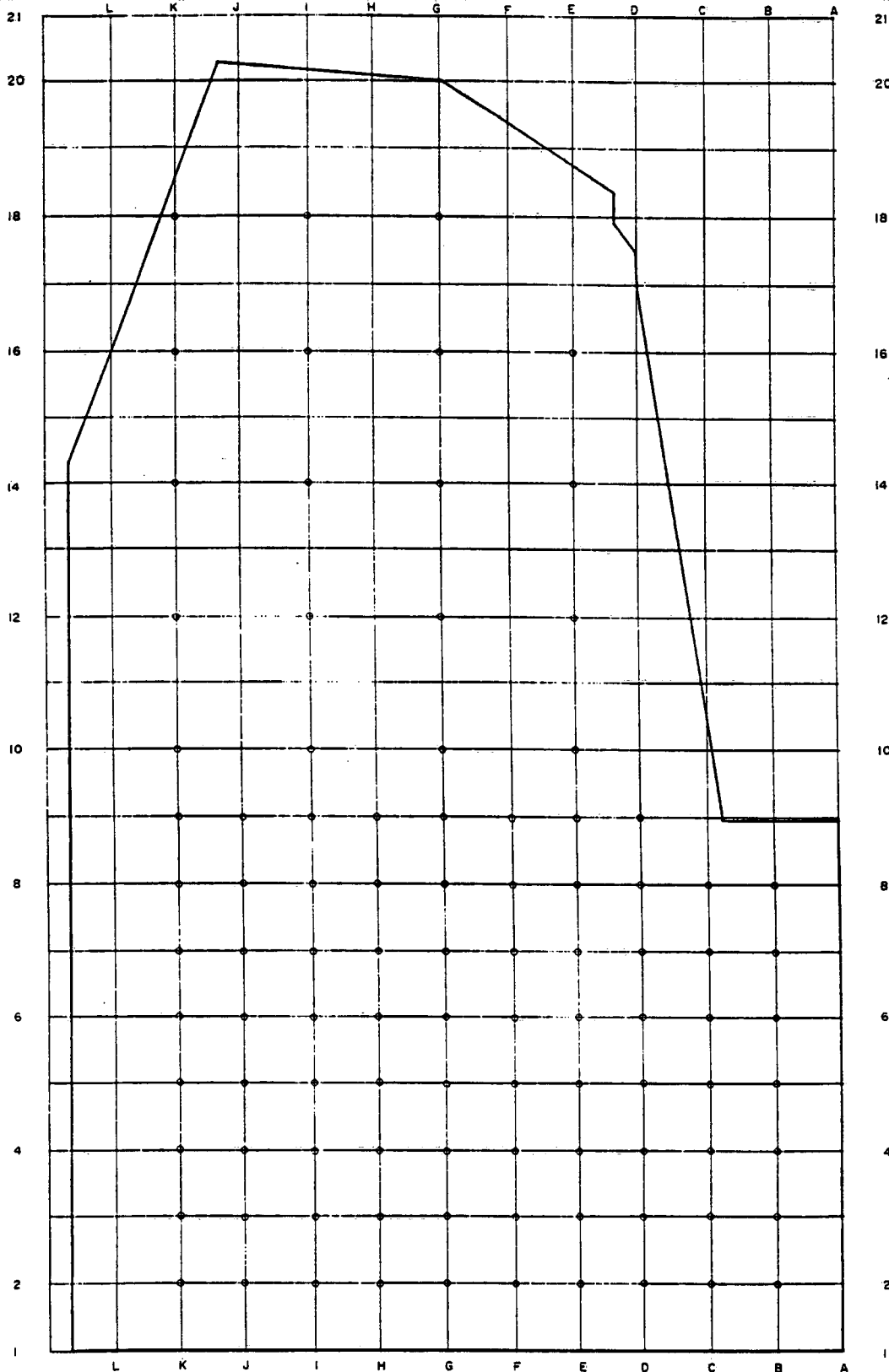
These sampling procedures will be adhered to where practical, but may need to be modified based upon field evaluations. Any deviations from the above methods will be noted in the final report.

11. SAMPLE CUSTODY PROCEDURES:

EPA Chain-of-Custody will be maintained throughout the sampling program as per TAT Standard Operating Procedures (SOP) on sample handling, sample container contract specifications and EPA Laboratories SOP. The Chain-of-Custody form to be used lists the following information:

- i. Sample number and site identification (coded)
- ii. Number of sample containers;

ELIZABETH RIVER



HIGH STREET

SAMPLE LOCATION MAP OF:
ELIZABETH COAL GAS
 ELIZABETH, NEW JERSEY
 SCALE: 1 in. = 40 ft.

DWN. BY: DR
 DATE: 04-23-91
 DWN.# 1312h



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FIGURE 2

- iii. Description of samples including specific location of sample collection;
- iv. Identity of person collecting the sample;
- v. Date and time of sample collection;
- vi. Date and time of custody transfer to FIT and ESD;
- vii. Identity of person accepting custody.

12. DOCUMENTATION, DATA REDUCTION AND REPORTING:

Field data will be entered into a bound notebook. Field notebooks, field data sheets, Chain-of-Custody forms, and laboratory analysis reports will be filed and stored as per TAT Document Control System.

13. QUALITY ASSURANCE AND DATA REPORTING:

QA/QC to be furnished by the contracted laboratory will be USEPA Quality Assurance Level 2 (QA-2) (see attachment).

14. DATA VALIDATION:

All steps of data generation and handling will be evaluated by the Project Officer and the Quality Assurance Officer for compliance with the specified requirements.

15. SYSTEM AUDIT:

The QA/QC Officer will observe the sampling operations and review the subsequent analytical data to assure that the QA/QC project plan has been followed.

16. CORRECTIVE ACTION:

All provisions will be taken in the field to ensure that any problems that may develop will be dealt with as quickly as possible to ensure the continuity of the sampling program. Any deviations from this sampling plan will be noted in the final report.

17. REPORTS:

Laboratory results and all requested QA/QC information will be submitted to EPA upon completion of sample analyses. Sampling reports will be issued after receipt of laboratory results.